AUSTRALIAN RAIL TRACK CORPORATION LTD

2011 HUNTER VALLEY COAL NETWORK ACCESS UNDERTAKING

OPTIONS FOR POSITIVE PERFORMANCE INCENTIVE MECHANISMS

CONSULTATION DOCUMENT

DECEMBER 2011

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1. Executive Summary

Background: ARTC's 2011 Hunter Valley Access Undertaking (2011 HVAU)

In June 2011, the 2011 HVAU lodged by ARTC was accepted by the ACCC. This followed previous versions in April 2009, September 2010 and April 2011 that were subject to a substantial level of consultation and ACCC review. As part of that consultation process, it became clear that:

- there were concerns that the 2011 HVAU (and earlier versions) contained only negative incentives for ARTC to perform as this may cause ARTC to adopt a 'minimum risk' position; and
- coal stakeholders were supportive of the concept of ARTC having positive incentives to perform where this delivered better outcomes for the coal chain (e.g. increased capacity through better use of use of existing infrastructure).

As a result, ARTC has incorporated at Sections 13.3 and 13.5 of the 2011 HVAU provisions to develop:

- within 6 months of the Commencement Date (by December 2011) options for performance incentives which have the objective of encouraging ARTC, through financial reward, to improve operating, maintenance and capital expenditure, and achieve desirable safety outcomes; and
- either in parallel with, or following completion of, a review of the system-wide true up test (TUT) to be undertaken following the completion of the first two calendar years after the Commencement Date (early 2014), options for performance incentives which have the objective of encouraging ARTC, through financial reward, to improve performance in relation to making Capacity available for use either on a contracted or ad hoc basis and balancing the negative consequences of failing the TUT.

Options will be provided to access holders and other stakeholders, and submissions invited. ARTC will consider submissions in good faith and provide a report addressing the options to the ACCC together with lodgement of a variation consistent with that report.

This paper sets out to discuss the issues relating to the adoption of positive incentive mechanisms which have the objective of encouraging ARTC, through financial reward, to improve operating, maintenance and capital expenditure, and achieve desirable safety outcomes and to consider some options available. The paper raises questions and seeks comments from stakeholders in relation to the proposed options to assist in the formulation of positive incentive mechanisms that will have broad support from stakeholders.

This paper is intended to address ARTC's commitment made at Section 13.3 of the 2011 HVAU, to develop options for performance incentives which have the objective of encouraging ARTC, through financial reward, to improve operating, maintenance and capital expenditure, and achieve desirable safety outcomes (non-TUT related ARTC performance incentives). This paper does not address ARTC's commitment made at Section 13.5 of the 2011 HVAU in relation to TUT related ARTC performance incentives.

1.1 Considerations in developing a Positive Performance Incentive Scheme (PPIS)

There are a number of matters that will impact on consideration of a PPIS, some common to all such schemes, and some that are dependent on the specific circumstances of the 2011 HVAU and the Hunter Valley coal chain.

1) *Specific regulatory circumstances proposed for the Hunter Valley*

   The 2011 HVAU proposes a cap on the revenue that ARTC may earn for a given asset base (Ceiling). In its pure form, the Ceiling would prevent ARTC from earning additional revenue even if it provides additional capacity from that asset base.

2) *The nature of the Hunter Valley coal chain*

   The Hunter Valley coal chain involves complex inter-relationships between service providers and coal producers for both the demand and supply of services. This makes it difficult to identify clear, unambiguous performance outcomes related to one party alone. In turn this makes the design of positive performance incentives for ARTC difficult.

3) *Objective of a performance incentive mechanism*

   In the context of the 2011 HVAU, the objective of a PPIS is two-fold:

(a) to ensure that ARTC does not exercise market power through reducing performance in order to increase profits; and

(b) to encourage desired performance where this is not sufficiently achieved through the pricing mechanism.

The 2011 HVAU already contains some protections to prevent the exercise of market power, but these are currently in the form of negative incentives. As such, the concern is that these may cause ARTC to minimise exposure to the downside, rather than strive to achieve a positive (and potentially more risky) outcomes.

4) Success factors inherent in a performance incentive mechanism

The success of an incentive mechanism relies on key factors such as:

(a) focus on those aspects of the service most valued by users;

(b) clear description of the performance level required;

(c) performance indicators that are both meaningful and measurable;

(d) the appropriateness of any financial implication compared to the impact of success or failure; and

(e) performance must be within the control of the owner of the infrastructure.

1.2 Some options for consideration

This paper presents four incentive mechanisms that attempt to address a variety of service attributes. It may be appropriate to consider these in combination, as adopting a single individual measure may result in too much emphasis on one particular aspect of ARTC's performance.

1) A positive performance incentive mechanism to improve ARTC productivity

This incentive is based on encouraging ARTC to continuously seek improvement in productivity and reductions in the cost of service provision. The form of regulation proposed for the Hunter Valley Network introduces two areas of difficulty to the construction of a suitable mechanism:

(a) ARTC's costs included in the Ceiling are required to be efficient. By definition, if ARTC's costs are efficient in a year, ARTC cannot improve on this.

(b) Even if ARTC is able to improve its cost performance, the Ceiling concept requires any reduction in costs to be passed through to access holders.

To overcome these problems, this paper proposes a mechanism whereby unit costs are set in advance over a multi-year period. Prices are determined in accordance with these costs, taking into account the actual scope of work, inflation and any extenuating circumstances. ARTC is allowed to keep any revenues in excess of actual costs up to the pre-determined amount based on the unit rates. Conversely, under the 2011 HVAU, ARTC risks under-recovery to the extent its actual unit costs exceed the previously determined rates and ARTC is unable to demonstrate to the regulator that the variation was justifiable and reasonable (efficient).

This mechanism has some complexity regarding measurement, the applicable scope of work and the true variation of costs with the scale of work and traffic on the network. These issues can be addressed through an assessment carried out by the ACCC as part of the annual compliance process.

2) *A positive performance incentive mechanism linked to 2011 HVAU Network Key Performance Indicators (Network KPIs)*

An incentive mechanism designed around ARTC's reported Network KPIs for the Hunter Valley Network could be used in combination with the other mechanisms discussed or as a substitute for one or more of them. For example, the Network KPI mechanism and the productivity incentive may be substitutable to the extent that these drive behaviour towards similar outcomes. The precise form of a Network KPI based incentive would need to take into consideration any other incentives adopted as this would influence matters such as:

(a) Identifying the relevant Network KPI and determining suitability

(b) Agreeing standards and benchmarks

(c) Prioritisation and quantification of the incentives

3) *A positive performance incentive mechanism directly linked to achievement of safety targets*

ARTC recognises that there is a risk that incentives based purely on economics or efficiency may work against maintaining the focus on safety, both as in regard to ARTC's rail operations and to people working on and around the track. In order to improve balance in a PPIS, ARTC proposes a suite of specific measures targeting performance in relation to specific safety attributes. Incentives in relation to these measures are linked to the productivity incentives, resulting in an internal tension between cost, productivity and safety. Composite measures covering more than one specific measure could also be considered.

4) *A positive performance incentive mechanism focussed around encouraging the use of innovation (soft assets) to achieve outcomes that could be delivered through hard assets (infrastructure)*

In the constrained part of the Hunter Valley Network, ARTC earns profits based solely on the value of the asset base. ARTC is not rewarded for solutions derived from innovation that extract additional productivity from an existing asset base as the Ceiling operates to return the additional revenue to access holders.

This has the potential to encourage ARTC to seek solutions that are based on the construction of 'hard' assets in preference to solutions derived from innovation. To overcome this, ARTC proposes an incentive mechanism based on 'capitalising' into the asset base 50% of the value of the equivalent 'hard' asset that would have produced the same additional capacity as is achieved through innovation, subject to endorsement by the Rail Capacity Group (RCG).

1.3 Conclusion

ARTC is seeking comments from stakeholders as to the structure and composition of a PPIS that is intended to encourage desired behaviours in ARTC and balance the negative incentives already contained in the 2011 HVAU.

2. Development of ARTC's 2011 Hunter Valley Access Undertaking

The 2011 HVAU accepted by the ACCC was lodged by ARTC on 23 June 2011. This followed lodgement (and subsequent withdrawal) of two earlier versions of the Hunter Valley access undertaking, occurring in early September 2010, where ARTC lodged its 2010 Hunter Valley Coal Network Access Undertaking **(2010 HVAU)** and in previously in April 2009, where lodged its original Hunter Valley access undertaking **(2009 HVAU)**.

2.1 2009 HVAU

All of these lodgings followed substantial consultation with relevant industry stakeholders and the ACCC, resulting in significant re-engineering of many parts of initial consultation documents provided to industry in mid 2008 and the 2009 HVAU in order to address industry needs.

The Draft Decision[1] on the 2009 HVAU released by the ACCC expressed concerns in relation to the application of the system-wide true up test **(TUT)** proposed in the 2009 HVAU that sought to rebate take or pay charges to access holders where ARTC failed to deliver system capacity on a monthly or quarterly basis, and access holders did not utilise their base entitlement to path usages in that month or quarter. Specifically, the ACCC expressed concern as to the negative asymmetric nature of the test and the absence of balancing mechanisms to positively incentivise ARTC to invest in, and maximise utilisation of, the Hunter Valley coal network.

'… the ACCC considers that it would be highly desirable for ARTC to be able to over recover revenue if ARTC was able to facilitate more path usages in a given period than the forecast of system capacity. However, the ACCC notes that a purely ex post assessment regime relying on penalties for under performance *[system wide true up test]*, while arguably not as desirable as a regime with positive performance incentives, could still be appropriate as long as the ex post assessment was clear and transparent and created reasonable efficiency incentives.'[2]

and, in considering the question,

[1] ACCC Draft Decision, 5 March 2010
[2] ACCC Draft Decision, p 29.

'Does the true-up test in its current form provide the incentive for ARTC to facilitate efficient investment and use of the rail infrastructure?'

''… the ACCC also notes that the test may give ARTC an incentive to under contract as it is purely negative asymmetric in terms of expected cash flows to ARTC. In addition, the tighter the test is formulated, the greater the negative expected cash flows from the test would be and the greater the potential incentive to under contract capacity would be. As such, a highly segmented true up test may result in ARTC facing incentives that will not result in it efficiently operating its Network.'[3]

In separate discussions with ARTC, the ACCC also indicated that it could see benefit in incorporating a mechanism that encouraged ARTC to seek to continually improve productivity.

Since the Draft Decision, ARTC has consulted further with stakeholders and the ACCC on these matters. Specifically, ARTC proposed some options to address the ACCC concerns to the ACCC and/or stakeholders, including:

- a mechanism to positively incentivise ARTC to make capacity, in excess of that contracted and available to users, contrasting the negative incentives in this regard arising under the TUT;
- a mechanism to incentivise ARTC to improve productivity by enabling ARTC to capture any benefits for delivering services at costs below pre-agreed benchmarks; and
- permitting ARTC to earn an increment on the regulated return, where it matched agreed benchmarks in relation to Key Performance Indicators.

While stakeholders have not responded formally to these options, ARTC detected some acceptance of the need to have such mechanisms and the broad nature of the some of the mechanisms proposed.

In addition, stakeholders also sought some consideration of mechanisms that reward ARTC for:

- non-capital intensive performance – especially those that grow capacity; and
- achievement of safety targets.[4]

[3] ACCC Draft Decision, p 677.
[4] Rio Tinto meeting with ARTC, 6 August 2010.

2.2 2010 HVAU & 2011 HVAU

Following discussions with stakeholders and the ACCC and, in order not to unnecessarily delay finalisation of a Hunter Valley access undertaking, ARTC proposed to incorporate provisions in the 2010 HVAU that facilitated development and proposal of performance incentive scheme(s) as part of the 2010 HVAU (Part 2 of Schedule D) during the formal consultation process. At Section 8.3 of the 2010 HVAU, ARTC committed to comply with the schemes or mechanisms accepted as part of the 2010 HVAU.

In its Position Paper[5] in response to the 2010 HVAU, the ACCC indicated that:

'… it may be appropriate to accept the HVAU without an incentive scheme provided that a suitable proposal will be developed in consultation with stakeholders and proposed for inclusion in the HVAU within an appropriate timeframe.'[6]

ARTC took from this that the ACCC considered that it may be preferable to undertake a more considered development of performance incentives over a reasonable period of time after approval of the access undertaking, rather than to expediently incorporate incentives during a time constrained approval process.

Stakeholder submissions[7] to the ACCC and subsequent discussion by ARTC with stakeholders suggested that the industry, by and large, considered the most important element of any development of appropriate performance incentives would be adequate consultation with industry. The nature of the incentives considered appropriate by the industry is consistent with that described earlier.

ARTC considered that the development of performance incentives over a reasonable period of time after approval of the access undertaking was not inconsistent with an objective of ensuring adequate industry consultation.

As a consequence, and resulting from further consultation with the ACCC and stakeholders, the provisions at Sections 13.3 and 13.5 of the 2011 HVAU were developed by ARTC, as follows:

[5] ACCC Position Paper, 21 December 2010
[6] ACCC Position Paper, p236.
[7] NSWMC Submission in response to ACCC Consultation Paper, 25 October 2010, p11.

‘13.3 Development of non-TUT related ARTC performance incentives

(a) Within six months of the Commencement Date, ARTC will:

(i) prepare and publish on its website options for a proposed performance incentive scheme which has the objectives of encouraging ARTC, through financial reward, to improve operating, maintenance and capital expenditure efficiency, and achieve desirable safety performance, to be included in the Undertaking; and

(ii) invite submissions from Access Holders and other stakeholders on the proposed performance incentive scheme, within a specified time (which must be not less than 6 weeks from the publication of the options).

(b) ARTC will in good faith consider the submissions provided within the specified time and by no later than 12 months from the Commencement Date will:

(i) prepare a report addressing options for a proposed performance incentive scheme having regard to the submissions and containing ARTC’s proposed variation to the Undertaking to include its proposed performance incentive scheme;

(ii) provide the report to the ACCC; and

(iii) lodge a variation application with the ACCC under section 44ZZA(7) of the CCA consistent with the report.

(c) To avoid doubt, the performance incentive scheme under this section 13.3 may be developed separately from the TUT-related performance incentive scheme to be developed under section 13.5 and is not required to include performance incentives to the extent they would overlap with those to be developed under section 13.5.

13.5 Development of TUT-related ARTC performance incentives

(a) ARTC will either in parallel with, or following completion of, the TUT Review:

(i) prepare and publish on its website options for a proposed performance incentive scheme which has the objectives of encouraging ARTC, through financial reward, to improve its performance in relation to making Capacity available for use either on a contracted or ad hoc basis and balancing the negative consequences of failing the system wide TUT, to be included in the Undertaking; and

(ii) invite submissions from Access Holders and other stakeholders on the proposed TUT-related performance incentive scheme, within a specified time (which must be not less than 6 weeks from the publication of the options).

(b) ARTC will in good faith consider the submissions provided within the specified time and prepare a report addressing options for a proposed TUT related performance incentive scheme having regard to the submissions and HVAU ARTC Hunter Valley Coal Network Access Undertaking containing ARTC's proposed variation to the Undertaking to include its TUT related proposed performance incentive scheme and:

(i) provide that report to the ACCC; and

(ii) may lodge a variation application with the ACCC under section 44ZZA(7) of the CCA consistent with the report, or if it chooses not to, will set out in the report reasons why it is not submitting a variation,

at the same time as it submits the TUT Review report to the ACCC for approval under section 13.4(d) or as part of the TUT Review report.

(c) If ARTC decides to conduct the development of a TUT-related ARTC performance scheme after completion of the TUT Review, ARTC will complete development of a TUT-related ARTC performance scheme within 6 months of the completion of the TUT Review or such longer period as required to consider or address any variations that may be proposed or required by the ACCC.'

The 2011 HVAU provides for the TUT Review referred to in Section 13.5 above to commence as soon as practicable after the completion of two full calendar years following the 2010 HVAU commencement date. This acknowledges the need to only

develop performance incentives in relation to the TUT once the exact nature of the TUT is resolved during that review.

Consequently this paper is intended to obtain stakeholder views only in relation to options for performance incentive mechanisms in relation to Section 13.3, non-TUT related ARTC performance incentives.

Section 3 details a number of important considerations when developing a PPIS in the context of the Hunter Valley rail network.

Sections 4 to 8 incorporate some proposals for positive performance incentive mechanisms for stakeholder consideration consistent with these considerations and feedback already provided through ACCC and stakeholder consultation as detailed at Section 2 above.

3. Considerations in developing a performance incentive scheme

ARTC considers that the development of any performance incentive mechanism to apply to ARTC in the Hunter Valley, and in particular focussing on coal services, should have regard to the following considerations.

- The specific regulatory circumstances proposed for the Hunter Valley;
- The nature of the Hunter Valley coal chain;
- The objective of a performance incentive mechanism;
- The need for a performance incentive mechanism;
- The success factors inherent in a performance incentive mechanism;
- The means for applying a performance incentive mechanism;
- Any specific circumstances that may affect the mechanism; and
- ACCC concerns with the negative asymmetric nature of the performance incentive mechanisms existing in the 2011 HVAU.

Each of these factors is discussed in turn in this Section.

3.1 Specific regulatory circumstances proposed for the Hunter Valley.

3.1.1 Application of the revenue ceiling limit (Ceiling)

The 2011 HVAU proposes a Ceiling. Where pricing is constrained in the Hunter Valley (currently Pricing Zones 1 and 2), the maximum revenue available to ARTC varies with the efficient costs incurred by ARTC. This means that where ARTC is able to reduce operating costs in any year, any benefit is passed on to the access holders through a reduction in access pricing. Further, to the extent that ARTC can deliver capacity to the system without investment (or reduced investment than might otherwise be required) through improved capacity management or use of technology to increase utilisation, any benefit is, once again, passed on to access holders through reduced pricing. As such, the application of a Ceiling, where pricing is constrained, incorporates little or no positive incentive for ARTC to act in a desirable manner.

3.1.2 Incentives arising through regulatory and commercial obligations existing in the 2011 HVAU.

The 2011 HVAU itself (and Indicative Access Holder Agreement or IAHA) are designed to drive ARTC towards desirable behaviour in any event. For example, a breach of any provisions in the 2011 HVAU gives rise to an ability of an applicant or access holder to seek some form of remedy through the provisions of the 2011 HVAU itself, or through regulatory or court intervention and enforcement. This clearly places negative incentives for ARTC not to act in a manner contradictory to the 2011 HVAU. There are also some other explicit mechanisms provided in the 2011 HVAU intended to financially incentivise ARTC to deliver on contracted entitlements. These include:

- incentive, by way of unrecoverable financing charges, to deliver investments on time;
- incentive, by way of prudency assessment, to manage and deliver projects prudently within approved cost limits; and
- incentive, by way of the application of the system-wide TUT, to each period (month or quarter as applicable), to provide path usages sufficient to meet the contractual entitlements of all coal access holders, including base path usages, the monthly tolerance cap (for the system as a whole). The TUT also incentivises ARTC to deliver contracted base path usages and tolerance to each access holder in each period through the application of a rebate of take-or-pay charges.

Each of these proposed mechanisms is negative and asymmetric, where ARTC is penalised if it fails through the exclusion of revenue from the Ceiling, without any corresponding positive incentive when ARTC achieves a better outcome than required.

The most wide-reaching of these mechanisms is the system wide TUT. Failure by ARTC to perform in a number of areas including:

- exceeding planned maintenance outages;
- over-contracting scheduled paths to coal or non-coal;
- selling Ad Hoc capacity to coal or non-coal at the risk of not delivering contracted capacity; or

- not meeting track related System Assumptions due to under-maintaining the network

can all result in failure to satisfy the TUT, with negative financial consequences.

3.2 The nature of the Hunter Valley coal chain

Due to the complexities of a coal supply chain and the interdependencies between participants in that chain it can be difficult to attribute specific responsibility for performance (or non-performance) of the chain as a whole.

ARTC notes that, under the rail access regime applying to the central Queensland coal network prior to 2010, there has been a scheme[8] permitting QR Network to retain a share of revenue collected in excess of the Ceiling where it could demonstrate that the additional revenue resulted as a consequence of a supply chain initiative implemented by QR, up to 2% of the Ceiling. In this case the onus was on QR Network to demonstrate a claim.

ARTC understands that, due to the difficulties associated with establishing a clear nexus between an increase in coal chain throughput, and the actions of one element of that coal chain, QR Network did not pursued a claim in relation to this scheme while it was in operation. In its 2010 access undertaking, QR Network removed this scheme and instead is to submit a proposal regarding an alternative performance incentive scheme to the regulator in late 2011 that:

"(A) operates in manner such that there is an equal probability that QR Network can obtain a positive or a negative incentive (that is, in a symmetrical manner); and

(B) would not potentially have the effect of reducing any System Allowable Revenue by more than 5%;" [9]

It may be that addressing accountability for performance across the whole of the coal chain may be better undertaken through a whole of chain forum, such as the Hunter Valley Coal Chain Coordinator **(HVCCC)**.

[8] QR 2006 Access Undertaking, amended Schedule F, June 2007.
[9] QR Network 2010 Access Undertaking, October 2010, section 2.6(f).

3.3 Objective of a performance incentive mechanism

In the circumstances of a regulated monopoly service provider, the objective of a performance incentive scheme is two fold:

- to ensure that the firm does not exercise market power through reducing performance in order to increase profits; and
- to encourage desired performance where this is not sufficiently achieved through the pricing mechanism.

3.3.1 Role of an incentive mechanism to prevent inappropriate profit

As stated earlier, the 2011 HVAU contains a Ceiling in the form of a revenue cap (where pricing is constrained) that limits revenues to the economic cost of the service. Thus the Ceiling can serve to cap the profits available to ARTC that might arise through reduced performance and cost.

It is recognised that some regulatory structures can allow profits to increase where the Ceiling is tied to specific performance levels and resulting benchmark costs, for example where a price cap is used. However, as experience in Queensland has demonstrated, the adoption of a price cap mechanism involves substantial complexity and controversy in setting the appropriate parameters, to the extent that, in 2007, QR Network chose to move to a revenue cap[10]. Therefore, while a price cap could provide a pricing mechanism with both positive and negative incentives, the apparent difficulties outweigh the benefits, and ARTC has not sought to adopt such a mechanism for the 2011 HVAU.

3.3.2 Where performance is not sufficiently achieved through the pricing mechanism

In circumstances where the pricing/revenue structure either fails to provide incentives to encourage desirable behaviour, or the signals to do so are muted or distorted in some way, then performance incentives may offer a useful alternative. As already noted, the 2011 HVAU already includes some monetary performance incentives, but these are all negative and asymmetrical. A difficulty arises under a revenue cap Ceiling that, by its nature, the Ceiling prevents the achievement of superior revenue outcomes for ARTC. Therefore, any performance incentives with positive revenue outcomes would need to deal with this constraint in some way.

[10] QR 2007 op. cit.

While performance mechanisms can be designed around monetary outcomes, this is not the only alternative. A firm can also be motivated by non-monetary considerations such as self-image, customer perceptions, political pressure and public opinion. This applies particularly where the firm is subject to regulatory oversight as the firm will always be aware that negative customer feedback can negatively influence regulatory outcomes, or conversely a firm that is widely held to be operating efficiently may find a regulator more favourably disposed to the firm's submissions. This opens the way to the adoption of reporting based mechanisms to achieve the maintenance of desirable performance where non-monetary incentives are sufficiently strong. This would include such mechanisms as published performance reporting, setting and enforcing performance standards or through performance incentive mechanisms based around non-monetary outcomes (or indirectly related to monetary outcomes). As stated earlier, however, a Ceiling (where pricing is constrained) will act to limit additional profits that might arise through reduced performance and cost. Profits can increase however where the Ceiling is tied to specific performance levels and resulting benchmark costs.

In this instance, maintenance of desirable performance can be achieved through such mechanisms as published performance reporting, setting and enforcing performance standards or through performance incentive mechanisms.

3.4 Need for a performance incentive mechanism

Traditionally, performance incentive mechanisms are often introduced where there is:

- substantial information asymmetry between the users of infrastructure and the owner of the infrastructure; or
- a lack of balance in the negotiation power of the users of infrastructure and the owner of the infrastructure.

This occurs more often in industries such as electricity where there is a large and diverse range of customers with no individual negotiating power and little knowledge of the service provided by the infrastructure.

It could be argued that the Hunter Valley Coal network is not characterised by a large number of small users lacking an understanding of the infrastructure owner's business, and without any negotiating power. Indeed, the user base in the Hunter

Valley comprises a relatively small number of large sophisticated mining companies and rail operators which, individually and together, wield substantial bargaining power.

3.5 Success factors inherent in a performance incentive mechanism

The success of a performance incentive mechanism often relies on a number of key factors including:

- the identification and focus on those performances that are most valued by users;
- clear description of the performance level required;
- performance indicators that are both meaningful and measurable;
- the appropriateness of any financial implication compared to the impact of success or failure; and
- performance must largely be within the control of the owner of the infrastructure.

3.6 Application of a performance incentive mechanism

As one of the success factors of a performance incentive regime involves the identification of performance that is most valued, it is likely that different customers may value different performance in different way. As such, it may be that performance incentives are better addressed through commercial agreements rather than through an access undertaking.

Having said this, ARTC expects that there would be a substantial degree of commonality and system wide application occurring in relation to coal users and as such developing consistent mechanisms is likely.

3.7 Specific circumstances that may affect the mechanism

In designing a performance measure or selecting success criteria (e.g. determining a cost benchmark), it is important that any specific circumstances that may impact on the measure are understood. Failure to correctly reflect the circumstances in the design may lead to the measure failing to provide the desired incentive, or worse, may encourage undesirable behaviours.

As an example of such a circumstance, if ARTC has a large capital expenditure program to increase capacity involving the existing alignment, this is likely to temporarily reduce capacity on the network as capacity will be consumed in additional track closures and paths taken up by work trains. A measure that is designed to encourage ARTC to more aggressively contract capacity that does not recognise the potential impact of desirable temporary reductions may fail to encourage ARTC to contract to a higher proportion of available capacity.

Similarly, a measure designed to improve ARTC's cost and productivity performance would need to take into account that there may need to be a trade-off between minimising track maintenance costs and the availability of the track for the operation of coal trains. Minimum cost may not always be in the best interest of the coal chain and a measure that did not reflect the desired trade-off could be counter-productive even though, prima facie, it encouraged 'efficient costs'.

3.8 ACCC concerns with the negative and asymmetric nature of performance incentive mechanisms already existing in the 2011 HVAU

As stated earlier, there are existing mechanisms proposed in the 2011 HVAU that are largely designed to incentivise ARTC to act in a desirable manner (such as meeting contractual obligations). These mechanisms are all designed around penalising ARTC through either reducing access revenue, or reducing the Ceiling, where behaviour is not desirable.

The ACCC has focussed on the negative and asymmetric nature of the system-wide TUT, but other mechanisms above are also negative and asymmetric. In its Draft Decision in response to the 2009 HVAU, the ACCC noted that, whilst the system-wide TUT did appear appropriate (subject to specification and calculation of NPC and MTC) the TUT "may give ARTC an incentive to under-contract as it is purely negative asymmetric in terms of expected cash flows to ARTC".

It was suggested that the system wide TUT should also provide positive performance incentives for ARTC to:

- increase network utilisation by contracting for more capacity, rather than less, and
- utilise spare capacity by providing Ad Hoc paths, where possible.

It should be noted that the ACCC did not however formally raise this as an issue in its Draft Decision.

ARTC recognises that the system-wide TUT in the IAHA provides an asymmetric incentive, and that its incentive under the current proposal is to provide Ad Hoc Paths when it has either delivered all contracted paths, the tolerance cap, and tolerance paths sought by an access holder or when it is sure that the provision of the Ad Hoc Paths will not impact on its ability to deliver these things.

With the above considerations in mind, ARTC presents some options below in relation to performance incentive mechanisms that are intended to introduce positive incentives for ARTC to perform in a desirable way, to balance the negative asymmetric nature of mechanisms existing in the 2011 HVAU.

It should be noted that incentive mechanisms intended to directly address the negative asymmetric nature of the system-wide TUT as identified by the ACCC and described above are not included in this paper, and will be considered separately in accordance with Section 13.5 of the 2011 HVAU.

4. A positive performance incentive mechanism to improve ARTC productivity

4.1 Overview

In the Draft Decision in response to the 2009 HVAU, the ACCC considered that it wasn't appropriate for ARTC to not be subject to an effective incentive to incur efficient operational expenditure, coupled with ACCC power to ensure compliance, as it would not provide for an incentive to reduce costs or improve productivity[11].

It has not been ARTC's intention to diminish the ability of the regulator to ensure that ARTC's costs to be incorporated in the economic cost base are anything other than on an efficient basis. Under the New South Wales Rail Access Undertaking **(NSWRAU)**, the Independent Pricing and Regulatory Tribunal **(IPART)**, in assessing ARTC annual compliance with the NSWRAU, is able to satisfy itself that ARTC's costs are incurred on an efficient basis, and may exclude recovery of any costs not deemed to be incurred on an efficient basis.

The 2011 HVAU now incorporates a more explicit requirement for operating expenditure to be efficient, clarifies what is efficient, and provides suitable ACCC powers to ensure compliance.

ARTC's primary concern in relation to a regulatory assessment of efficiency has been the possibility that the regulator, in making its assessment (often carried out as a benchmarking exercise) will not fully recognise the impact that the specific circumstances in the Hunter Valley has on the costs incurred to operate the Network. In particular, the definition of 'Efficient' in Section 14.1 of the 2011 HVAU, recognises

'… costs incurred by a prudent service provider managing the Network, acting efficiently, having regard to any matters particular to the environment in which management of the Network including:

(a) the Hunter Valley Coal Chain where a key objective in maintenance planning is to maximise coal chain throughput and reliability;

(b) …'

[11] Draft Decision, p597.

ARTC has sought to incorporate in the 2011 HVAU a definition of 'Efficient cost' to be applied by the ACCC when assessing efficiency that will at least direct some focus towards the impact of specific needs of the Hunter Valley coal industry on ARTC's operating costs.

As it currently stands, assessment by the ACCC of whether ARTC's costs are incurred efficiently will take place during the annual compliance assessment. This is currently the case under the NSWRAU.

ARTC considers that the 2011 HVAU now provides for sufficient incentive for ARTC to incur operating expenditure and capital expenditure efficiently.

During discussions with ARTC, the ACCC indicated that it may look favourably towards a mechanism in the 2011 HVAU that sought to provide some incentive for ARTC to seek to improve productivity in its operating expenditure.

Under a normal Ceiling, it could be argued that there is little positive performance incentive for ARTC to improve productivity. On the other hand it could also be argued that as the ACCC is able to assess ARTC's cost efficiency annually (and there is an assessment of prudency in relation to all capital expenditure) there is an implicit (negative) incentive for ARTC to improve productivity, at least in line with 'benchmarked' efficiency improvements. This could perhaps be better framed as a disincentive to not seeking ongoing productivity improvement.

A possible option for a performance incentive mechanism is proposed whereby ARTC and the ACCC can agree ahead of the expenditure being incurred a 'target' level of expenditure or cost base that would be determined for each cost category over an extended period (say three to five years). The target level of expenditure would be incorporated in Economic Cost and therefore recovered, irrespective of actual expenditure incurred by ARTC.

In this way, the existing ex-poste assessment of expenditure would be replaced by an ex-ante assessment, without altering ARTC's productivity incentives.

4.2 ARTC's existing performance

4.2.1 Operating Expenditure

Table 1 below shows approved ARTC operating expenditure with respect to the constrained coal network incurred since ARTC took up operations in the Hunter

Valley in 2004-05. (5 September 2004). The following should be noted with respect to these figures:

- Operating expenditure, GTK and Train km relate to a stand-alone constrained coal network only.
- 2004-05 GTK figures are annualised from 5 September 2004 – 30 June 2005 to the full financial year.
- The constrained network has changed over the period with the inclusion of the sections from Bengalla Junction to Ulan and the removal of Muswellbrook to Dartbrook. To enable proper comparison, figures for 2005-06 and 2006-07 have been adjusted to include Bengalla Junction to Ulan, and exclude Muswellbrook to Dartbrook. This was not possible for 2004-05 and, as such 2004-05 figures do not include these adjustments. Unit indicators however should still be broadly comparable.
- Abnormal items excluded - $1.1M weighbridge certification in 2006-07, $1.81M flood rectification in 2007-08, $1.4M and $1.3M regulatory and commercial development costs in 2008-09 and 2009-10 respectively.
- All figures are in $2009-10

Table 1: ARTC Hunter Valley Constrained Network Operating Expenditure ($09/10)

Year	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
GTK(b)	**11.86**	**13.71**	**14.24**	**16.67**	**18.24**	**18.78**
Train km. (Mill)	**NA**	**2.36**	**2.55**	**2.98**	**3.26**	**3.36**
EXPENDITURE ($09-10m)						
Maintenance	35.37	41.63	41.56	46.18	41.23	41.64
Network Control	7.84	9.31	9.20	6.15	6.07	6.21
System Overheads	6.44	7.48	7.04	7.29	8.33	8.19
Total operating expenditure	**49.66**	**58.42**	**57.80**	**59.63**	**55.63**	**54.88**
UNIT EXPENDITURE ($09-10)						
Maintenance ($/000GTK)	2.98	3.04	2.92	2.77	2.26	2.22
Network Control ($/train km)		3.95	3.61	2.06	1.86	1.85
System O/H ($/train km)		3.18	2.76	2.45	2.55	2.44

Figure 1: ARTC Hunter Valley Unit Operating Costs

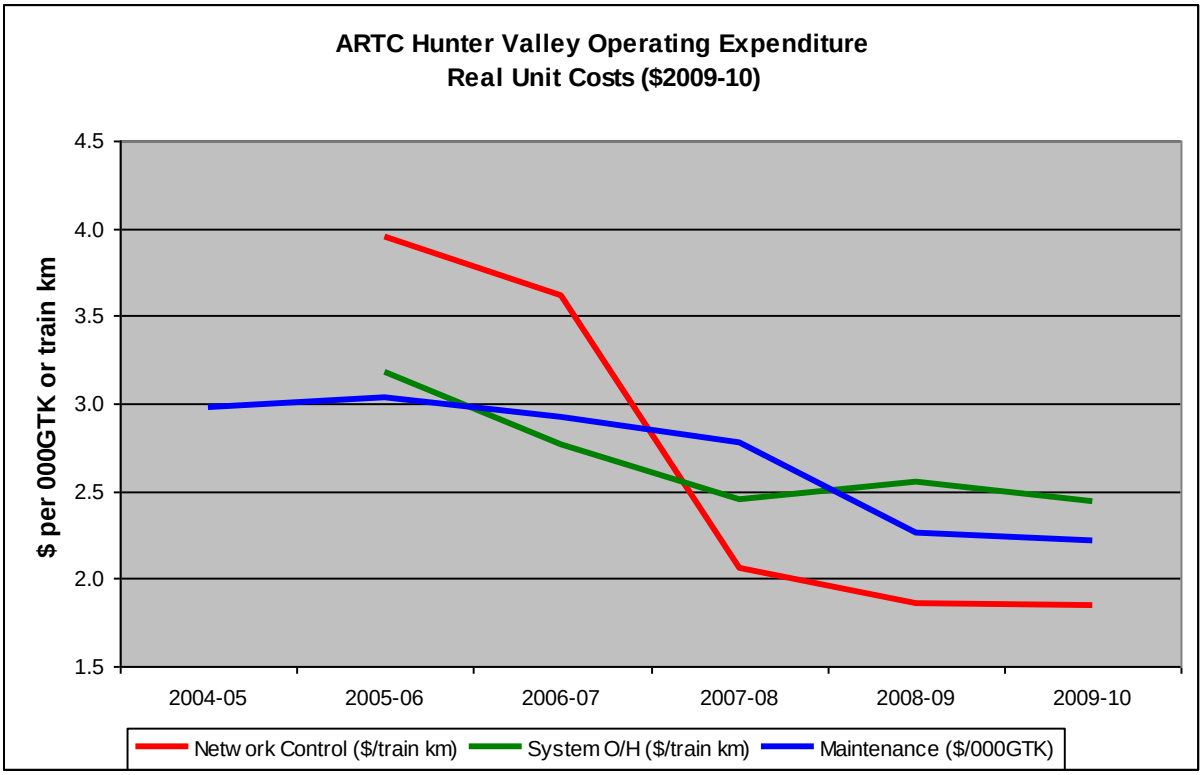


Figure 1 shows the movement in unit operating expenditure in relation to ARTC maintenance activity (including maintenance overheads), network control and system overheads.

(a) Maintenance

In relation to maintenance expenditure around two thirds is directly identified with segments in the constrained network whilst around one third is allocated on the basis of GTK to the constrained network. The allocated portion has declined since 2004-05 from around 37% to around 34% in 2009-10. Unit maintenance expenditure has fallen substantially (by around 25% in real terms) since 2004-05. In order to achieve this ARTC has been able to maintain maintenance expenditure in real terms despite a significant increase in network volume over the period. As volumes increase significantly, the extent of variable maintenance expenditure (compared to fixed maintenance) generally increases. The following is an excerpt from an extensive and well regarded study undertaken by the Queensland Competition Authority in 2000 when assessing QR's access undertaking at that time.

'At low tonnages, only a small part of the maintenance cost is variable but this increases to around 20% at 5MGT and 30% at 10MGT for concrete and about 10% more for timber. By 20MGT, the variability has increased to about 45% to 55% respectively and they then increase steadily, until they are over 80% at 60MGT, as asset renewal becomes increasingly tonnage-based.' [12]

Hunter Valley network utilisation currently averages 160MGT (increasing to 280MGT by 2019) in Pricing Zone 1 (concrete), 38MGT (increasing to 54MGT by 2019) in Pricing Zone 2 (concrete) and 18MGT (increasing to 50MGT by 2019) in Pricing Zone 3 (concrete/timber).

Given that maintenance overhead is allocated in line with relative GTKs compared to other parts of ARTC network, this would suggest that ARTC maintenance expenditure for Pricing Zone 1 would be around 60-70% variable with volume (and likely to be higher because of the strong Hunter Valley GTK growth compared to the remainder of the ARTC network). Similarly, Pricing Zones 2 and 3 could be expected to show maintenance cost variability of higher than 50% (given strong GTK growth expected on these segments).

As such, ARTC is unlikely to be able to maintain real maintenance expenditure (and reducing real unit costs) into the future to the extent that it has been able to do in the past. In fact, there is likely to be a point at which unit costs increase as the ability to access the network for maintenance becomes increasingly constrained and there is a need to focus maintenance resources on a particular area in order to minimise 'possession time' that may be a less efficient utilisation of resources than if they were spread more evenly. This already occurs to some extent, but will become more pronounced as volumes increase further.

(b) Network Control

In relation to network control expenditure, Figure 1 shows the real unit cost to have reduced by more than half since 2005-06, and total network control expenditure (in real terms) has reduced by around one third over the same period. This quantum improvement in operating efficiency is consistent with the outcome from ARTC's network control consolidation program undertaken in NSW in 2007. Around $15m for this program was allocated to the Hunter Valley RAB in 2007-08. The reduced unit and total network control maintenance expenditure now

[12] QCA Draft Decision on QR's Draft Undertaking – Working Paper 2, 'Usage-related infrastructure maintenance costs in railways.', December 2000, p14.

incorporated in the cost base largely reflects the flow of benefits associated with this investment.

With this substantial program now completed and bedded down, further improvements in unit operating expenditure are unlikely without a further substantial investment in technology and equipment. Such opportunity may arise if ARTC's Advanced Train Management System technology is able to be rolled out across its network (including the Hunter Valley) although much of the benefit of this step change in network management technology will lie in increased network capacity. Without further investment in network control technology, unit cost reductions lie largely in increasing the scope of network control boards. Given expected volume increases in the Hunter Valley, increasing the scope of network control boards is unlikely in light of safety considerations.

(c) System Overheads

In relation to system overheads, these arise from an allocation (on a train kilometre basis) to the constrained network. Even where ARTC system overheads are maintained, annual variations could arise through changes in the relativities between utilisation of the constrained network and other parts of ARTC's network. Figure 1 shows that real unit system overhead cost has reduced from 2004-05 levels, with a marginal increase noted in 2008-09. The overall decline would have resulted from ARTC taking up opportunities to 'bed down' and rationalise the initial structural arrangements at commencement of its lease in 2004-05, which had a profound and immediate impact on the size and make-up of the company. This would have been offset to some extent by structural changes and movement of resources within parts of the organisation, as well as strong coal growth in the Hunter Valley network compared to lesser growth in some other ARTC traffics such as grain and steel. The slight increase in 2008-09 arose from increased allocation to the constrained network resulting from continued coal growth against reduced intermodal and steel traffic resulting from the economic slow down at that time. The expected growth in utilisation of the constrained network is likely to continue to be higher than that forecast by ARTC on other parts of its network. As such, the allocation of system overheads in the future may increase irrespective of any productivity improvements that can be made at a system level. In light of increased volumes expected on both the constrained network and the remainder of ARTC's network, and the relatively fixed nature of system overheads with respect to volume, it is likely that the real unit rate associated with system overheads will continue to reduce over time.

It should also be noted that partially offsetting this underlying trend of reducing real unit rates, will be the cost associated with managing commercial and logistical arrangements, including participation in the HVCCC, RCG management and support, and daily management of ongoing contractual obligations. Whilst ARTC has undertaken some of these tasks in the past, the processes involved will now be much more extensive and formal, with increased accountability and greater scrutiny, required under the 2011 HVAU. For example ARTC will be required to manage at least 14 Access Holder Agreements with explicit capacity obligations and associated Operator Sub-Agreements compared with managing 3 operator based contracts with broadly based capacity obligations. Resources to manage these contracts on a day to day basis will be primarily based in Newcastle and ARTC expects that much of this expenditure will be directly identifiable with the Hunter Valley coal network.

Whilst productivity improvements at the system level are likely to flow through in some form to the constrained network (through a reduced unit rate), system decisions and initiatives are made with respect to the system, and benefits in some cases may lie in parts of the network other than the constrained network. Unless such benefits are directly identifiable with a part of the network, at least some part of those benefits will accrue to all parts of the network (including the constrained network) through the allocation process.

(d) Generally

In relation to the 2004-05 annual compliance assessment, IPART, and its consultant, engaged in a comprehensive assessment as to whether ARTC costs complied with the NSWRAU. The assessment involved full disclosure of ARTC cost details requested by IPART, an examination of specific costs, and benchmarking against comparable costs in other jurisdictions.

IPART's determination, following an exhaustive assessment, was to exclude $221,000 from the constrained network cost base of $35.1m, i.e. 0.6%. IPART found that this expenditure (made up of a maintenance overhead and system overhead) had been incorrectly allocated to the constrained network.[13]

Since this regulatory determination in 2004-05, which found that 99.4% of ARTC's costs were both efficient and appropriately associated with the Hunter Valley Coal

[13] The consultant's report can be found at http://www.ipart.nsw.gov.au/investigation_content.asp?industry=4&sector=10&inquiry=106&doctype=5&doccategory=1&docgroup=1

network (in the context of a test of efficiency), unit costs on the constrained network, as shown in Figure 1, have reduced in real terms. These reductions, which are completely passed through to constrained coal customers though the application of the ceiling test, provide strong evidence of the efficiency of ARTC current cost levels. The reductions are arguably beyond what might be expected from a natural reduction in unit costs arising from the fixed aspects of some costs being spread over increasing utilisation.

It could be argued that ARTC has maintained the real level of maintenance expenditure over the period, despite increasing network utilisation, at the risk of deteriorating network condition or performance. To provide some insight into whether the network has deteriorated, system performance is examined in the next Section.

Any productivity improvements that have occurred have done so though the existing regulatory oversight (annual compliance assessment) and without any other incentives being in place. Nevertheless, the presence of correctly determined and applied incentives may enable ARTC to share in the benefits of productivity improvements, something that is currently not the case.

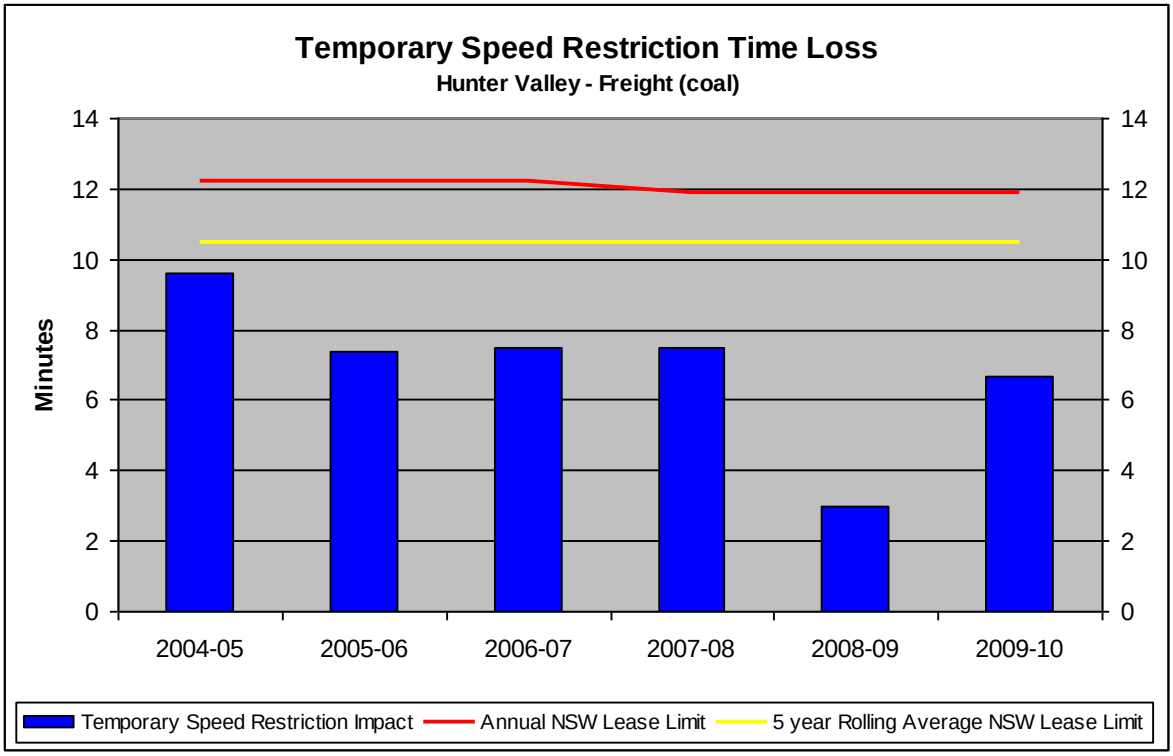
4.2.2 Network Performance

As well as through productivity improvements, unit cost reduction can also arise through reducing network operating activity (mainly maintenance) or taking possession of the network in a way which reduces cost, at the expense of increasing network capacity consumption. Having said this, it should be borne in mind that as network utilisation increases to consume available capacity, the opportunity to structure possessions in a way to reduce (or even maintain) cost diminishes.

Reduced maintenance and increased possession time (after factoring in the effects of increasing network utilisation), can manifest in the deterioration of a number of readily observable measures of such things as network condition and capability over time, as well as time consumed by network possessions.

Figure 2 below shows average annual time loss associated with the presence of temporary speed restrictions on the Hunter Valley coal network over the five year period from 2004-05.

Figure 2: Time Loss Due To Temporary Speed Restrictions



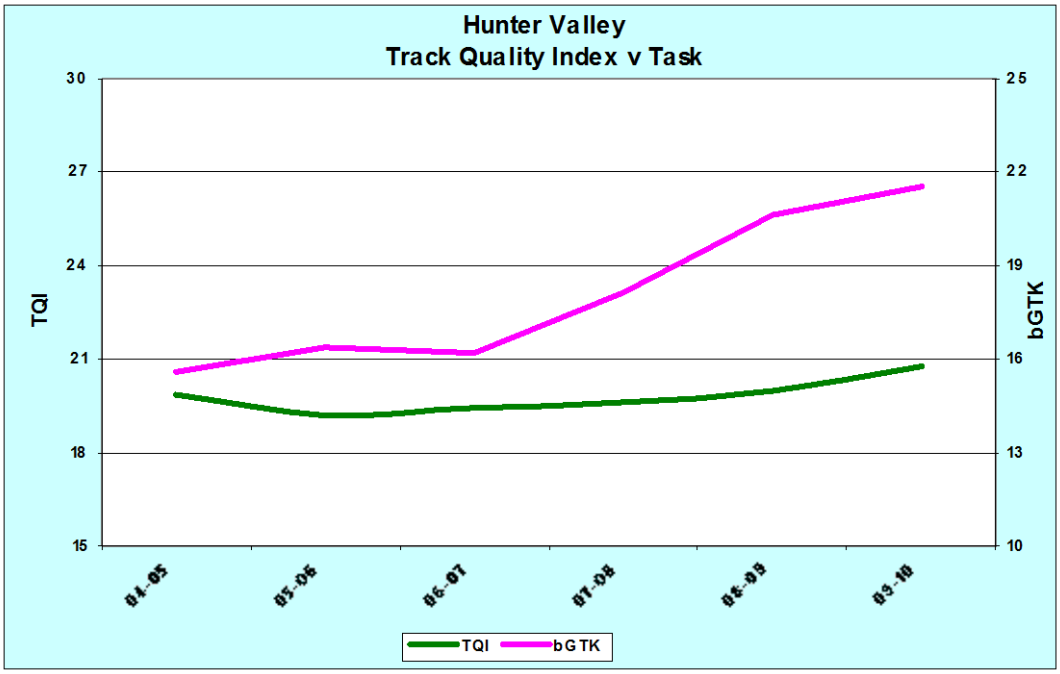
The extent and severity of temporary speed restrictions is an indirect measure of network condition, framed in terms of the impact on services. That is, Figure 2 shows the total loss of time that would be experienced by a train resulting from all temporary speed restrictions on the Hunter Valley coal network, averaged throughout each year.

Over this period, ARTC has reduced the impact of temporary speed restrictions on trains on the Hunter Valley network significantly. This performance is well within the annual 5 year rolling average limits required under the NSW lease (which essentially reflect average performance on the Hunter Valley coal network in the 2-3 year period prior to lease commencement), as well as annual limits required under the NSW lease for any year.

There is strong evidence that ARTC has maintained and improved the performance of the Hunter Valley network in relation to the transit delay on services, which can significantly impact cycle times, coal throughput and overall operational efficiency on the network. This also provides evidence of the condition of the network and the adequacy of maintenance undertaken on the network.

Figure 3 below shows average track condition (measured as track quality index (TQI)) of the Hunter Valley coal network over the five year period from 2004-05.

Figure 3: Track Quality Index for Hunter Valley Network



TQI is a commonly used measure of track condition, which is a function of the level and appropriateness of maintenance undertaken. The lower the TQI, the better.

Over this period, ARTC has maintained the track in broadly the same condition over the 5 year period (between 19 and 21) despite a substantial increase in network volume (bGTK). Even though capital investment on the network over the period may have improved network condition to some extent, this provides evidence that ARTC's maintenance program has not led to a material deterioration in track condition over the period.

The reduction in the level of temporary speed restrictions and maintenance of track condition strongly suggests that reduction in unit maintenance cost on the constrained network as shown in Section 4.2.1 has not resulted from reduced maintenance levels leading to a material decline in network condition and performance.

4.3 Implications of a stand-alone assessment.

The 2011 HVAU proposes to measure expenditure that would be incurred to provide access to coal trains on a stand-alone basis. This is consistent with the arrangements under the NSWRAU.

This has implications for any productivity incentive measurement in that any target cost base against which ARTC was required to perform would be a cost base (presumably efficient) that would be required for coal trains on a stand-alone basis. This would mean that any actual savings ARTC can make against an efficient stand-alone cost base given its wider scope of activity and economies of scale should accrue to ARTC.

Benefits could arise in areas including:

- The ability to share maintenance and network control staff and equipment around the system. It could not be assumed that a stand-alone network would be in a position to do this, as it would need to share these resources with, notionally, a separate entity. A stand-alone network might be able to hire some elements of track maintenance equipment (e.g. diagnostic and track relaying machines) and services but would necessarily pay a premium to do so.

- Sharing of assets between staff involved in the constrained network and staff involved in other areas (e.g. buildings).

- The ability to share other maintenance overhead resources beyond the Hunter Valley.

- The ability to share system overheads between the Hunter Valley and other parts of the ARTC network.

The existing approach to allocate maintenance overheads and system overheads that are not directly attributable to the Hunter Valley network but are indirectly allocated on some resource basis has been applied for five years under the NSWRAU and is proposed in the 2011 HVAU. This is however technically inconsistent with the stand-alone cost approach where, by definition, all expenditure would be directly attributable to the constrained network. The existing approach essentially assumes that the allocation of a broader system cost to the constrained network is a proxy for what might have been the cost had it been determined through stand-alone cost, and this is assumed in the 2011 HVAU. This approach is common in regulatory frameworks where regulated infrastructure only forms part of a broader business entity.

As an example, the Chief Executive of an organisation responsible for 5 times the business activity of that on the constrained network might cost $500,000. A pro-

rata allocation of this cost to the constrained network might be $100,000, which would be considered as a proxy for the cost of the Chief Executive of the stand-alone business of the constrained network under the 2011 HVAU. The likelihood, in this case, is that this proxy would understate the stand alone cost. The likelihood is that this would be a common outcome for costs determined on this basis.

This effectively passes the benefits of ARTC's broader role to the Access Holders, and, to the extent such benefits exist, results in a reduction in revenue compared to a genuine stand alone railway. Note that allocation of non-direct expenditure is not explicitly contemplated in the NSWRAU, but occurs in practice.

This would therefore create an incentive for a broader entity to structure itself so that the regulated entity operated, as closely as possible, as a stand-alone entity. This could only ever be partially achievable, depending on the nature of the business, and in any event would counter the entity's normal business incentive to seek to extract as much scale benefit as possible.

In WA, there is no stand-alone assessment and efficient costs 'Means those costs that would be incurred by a body managing the railways network and adopting efficient practices applicable to the provision of railway infrastructure, including the practice of operating a particular route in combination with other routes for the achievement of efficiencies.' As such, the benefits of efficiencies derived from management of a broader network would also seem to accrue to users.

In Queensland, the QR Network Access Undertaking incorporates an assessment of the ceiling limit based on stand-alone cost of access provision for a service.

The definition of Stand Alone Costs is:

'"Stand Alone Costs" means those costs that QR Network would incur if the relevant Train Service(s) was (were) the only Train Service(s) provided Access by QR Network, and where those costs are assessed as the Efficient Costs and on the basis of the assets reasonably required for the provision of Access, and "Stand Alone" has a similar meaning.'[14]

Whilst the undertaking itself does not contain explicit provisions relating to the allocation of costs not directly associated with access for a service, a "Costing

[14] QR Network 2010 p 145

Manual" is defined to include "within the cost base for Below Rail Services, the process for identifying costs attributable to specified line sections (line section costs), costs not attributable to specified line sections but attributable to specified geographic regions (regional costs), and costs not attributable to specified line sections or any specified geographic region (network costs)".[15]

QR Network's approved Costing Manual provides for allocators (such as GTK and train kilometres) to allocate network wide costs to the Central Queensland Coal Network (CQCN). Once again, the benefits of efficiencies derived from management of a broader network would seem to accrue to users. However, these benefits (and the extent of broader network costs) to QR Network is diminished now that QR Network only manages the CQCN as a QR National subsidiary following the recent privatisation. On the other hand, QR National's vertically integrated structure means that broader overhead expenditure required to manage the integrated entity and stronger regulation would be allocated to the below rail network.

Given these precedents where the benefits of efficiencies derived from management of a broader network accrue to users, it may be difficult for the access provider to argue a case for determining a cost base based on stand-alone cost (bearing in mind this would be needed for each mine combination tested) so as to retain efficiency benefits. However, it is clear that the application of the stand-alone concept has been somewhat diluted in favour of access users whereby they obtain the advantages of sharing wider system costs which might be lower than if assessed on a stand-alone basis.

To underpin an alternative approach, ARTC would need to undertake a determination of what the efficient stand alone cost of the Hunter Valley would be. This would require an assessment as to how a 'Constrained Network' company would be structured and resourced. Ultimately this could result in some sort of agreed mark up to direct maintenance and operating expenditure, but such an artificial construct would inevitably be subjective and runs the risk of under- or over-estimating the real costs.

4.4 Positives and negatives of the ACCC approach

In discussions with ARTC, the ACCC suggested a mechanism whereby, ARTC and the ACCC can agree, ahead of the expenditure being incurred, a 'target' level

[15] Ibid p 130

of expenditure or cost base that would be determined for each category of cost over an extended period (say three years). The target level of expenditure would be incorporated in Economic Cost and therefore is able to be recovered, irrespective of actual expenditure incurred by ARTC.

In this way, the existing ex-poste assessment of expenditure would be replaced by an ex-ante assessment, without altering ARTC's productivity incentives.

Advance knowledge of the regulatory position in relation to compliance assessment is likely to be beneficial to ARTC, although it does not remove the risk that ARTC may not be able to operate efficiently.

Benefits envisaged from the approach could be:

- The advance knowledge of cost targets may enable ARTC to better manage costs and budgets against a proposed scope of work.
- The advance knowledge of cost targets is likely to place a stronger discipline on cost management and internal incentives.
- There is a potential for reduced regulatory cost whereby a single assessment may replace a number of annual assessments.
- Ex-poste assessment may only need to consider variations in cost/scope.

On the other hand, there are some negatives associated with the approach (although such negatives may already be inherent in the current approach) as follows.

- It could be assumed that the ACCC would seek to align cost targets to efficient costs in some way, in which case ARTC may have to do better than 'efficient' in order to obtain any upside from the approach. By definition, efficient cost is the lowest cost in the circumstances. It would therefore not to be possible to deliver at a lower cost in the same circumstances. Thus this represents only a negative incentive (as does the ex-poste approach) to minimise costs, with no 'upside'.
- The nature and scope of maintenance work undertaken each year varies (including with volumes) which will complicate the setting of target costs, and may require detailed maintenance cost modelling. In addition to this, some one-off (event related) expenditures would need to be 'quarantined'.

- The extent to which operating expenditure is allocated to the Hunter Valley coal network (and the constrained network) depends on several factors including the operating costs of ARTC's broader network, and the relativity of GTK or train km on ARTC's relevant networks. This will further complicate the determination of target costs.

4.5 Possible option for determining target costs

Given the above, an approach that maximises the benefits from the positives of the ACCC approach, whilst mitigating at least some of the negatives, might have the following characteristics:

1. For variable and fixed maintenance costs, ARTC and the ACCC agree a 3 to 5 year scope of works and the cost base (operating expenditure) for performing that scope (as though all activities were performed at Year 1 costs based on a detailed assessment of maintenance activity by Segment and the unit cost associated with performing that activity). ARTC normally scopes maintenance activity over a 5 year planning period in a reasonable degree of detail. Reference here could be made to ARTC's historical unit maintenance cost performance.

   Dealing with variable maintenance costs presents some difficulties. Variable maintenance is certainly related to traffic levels, however, the relationship is neither linear, nor direct in the short-term (i.e. there is a degree of discretion as to when various maintenance activities are performed). Typically the maintenance program will be set ahead of actual expenditure based on a forecast of requirements determined from forecast traffic levels and other considerations such as resource and possession availability. It will not be known until the end of the year what actual traffic volumes arose during the year and therefore a mismatch might arise if expenditure is linked directly to traffic levels. A way around this would be agree a scope for the year ahead during the budget cycle, and where past maintenance activity has been over- or under-provided against actual traffic levels, the following year budget could be adjusted accordingly. This approach would require a more detailed annual scope setting process than might otherwise be the case.

2. For Network Control costs, ARTC and the ACCC agree a 3 to 5 year operating expenditure budget based on the planned scale of Network Control activities. Reference here could be made to ARTC's historical unit Network Control cost performance.

3. The remaining elements being maintenance overheads and corporate overheads could be addressed by performing an allocation as currently set out in Section 4.6(a) for Non-Segment Specific Costs and Assets based on planned network business activity (GTK, train kilometres) and the unit cost associated with overhead activities to develop a budget for the first year. Reference here could be made to ARTC's historical unit overhead cost performance. Subsequent budgets could be based on these unit costs applied to forecast business activity (both in the Hunter Valley and or ARTC's wider network) in the subsequent years. Where actual business activity deviates from forecast, the agreed budget is automatically revised to reflect the deviation.

4. Other approaches could be

    a. leave the allocation of Non-Segment Specific Costs and Assets out of the mechanism and retain the allocation methodology as currently set out in Section 4.4(a) of the 2011 HVAU; or

    b. determine a true stand-alone cost for these cost elements (i.e. as though the Hunter Valley Network was a true stand-alone company) and use this in place of the Section 4.4(a) allocation of broader costs.

5. The agreed costs would be escalated for subsequent years by a suitable index to reflect changes to input costs. As input costs are largely beyond ARTC's control, the costs allowed for the performance of the agreed scope need to be adjusted reflecting changes to this aspect of cost. The appropriate annual cost inflator would need to be agreed, but options include:

    a. CPI[16]

    b. QR Network Maintenance Cost Index (a composite of fuel price, maintenance consumables, labour cost variation)[17]

    c. ABS Road and Bridge Construction Index[18]

    d. BITRE Road Construction and maintenance price index[19]

    Percentage productivity improvements would be agreed for subsequent years (net of the agreed escalator) having regard to efficiency losses arising due to factors beyond ARTC's control (i.e. the fact that efficient costs can actually rise

[16] Australian Bureau of Statistics, 6401.0.
[17] As incorporated in the QR Network 2010 Access Undertakings
[18] Australian Bureau of Statistics, 6427.0
[19] http://www.bitre.gov.au/info.aspx?ResourceId=790&NodeId=61

due to the network constraints as the network approaches (stays at) maximum capacity). That is, the design of the cost allowance needs to recognise that efficient cost might represent a series of non-linear curves varying broadly with volume for any given set of infrastructure, modified to take into account other factors such as reduced access to that track for maintenance during periods of high demand or large construction projects.

It needs to be recognised however that the establishment of an appropriate productivity target to reflect a range of business contingencies as described above whilst still providing a sufficient incentive to the owner can be subjective and complex.

6. Annual compliance will require reasons for, and demonstration of, the efficiency of variations to scope as well as other material impacts on unit costs (outside of any automatic variation arising through the process to reflect variation in business activity from forecast).

   Modest variations might be accommodated without the need for a detailed review, while retaining the opportunity to go into detail where this is warranted.

7. Once agreed, the maintenance scope and various cost elements would be accepted by the ACCC as being Efficient for the purposes of determining Economic Cost under the 2011 HVAU (Section 4.5) for that 3 year period.

8. For those elements of costs that are fixed under this process, the outcome would be expressed as a total dollar amount for each element.

   The agreed costs outputs for each element would also be at a level of aggregation suitable to provide to Access Holders as required under the 2011 HVAU (Section 4.21).

9. At the end of the three or five year period there would be a re-set of the efficient cost base. Alternatively, a reset of year 3 or year 5 unit costs could be agreed between ARTC and the ACCC which enabled ARTC to continue to benefit from any excess productivity improvements (or continue to pay the price for a shortfall).

The above approach has the following advantages:

- The advantage of an ex-ante assessment as described earlier.

- Compared to an approach that provided for total cost targets only, the approach takes into consideration cost impacts that arise from variations in volume and scope.

- Volume changes through the period can be dealt with through adjustments to scope of the variable maintenance activities to take account past annual variations, so volume changes should only be a cause for reopening consideration of costs where the change was so significant as to impact on the fixed cost base.)

- Although limited in value and application, benchmarking of maintenance and network control unit costs against benchmarks in other systems or, better, against ARTC's prior performance could be undertaken. Given that ARTC has been previously evaluated independently and in detail by IPART in 2004-05, where ARTC's costs were by and large considered compliant (efficient), and has demonstrated a reduction in unit costs since, it is not an unreasonable proposition and would be simpler, quicker and far less controversial if there is a general consensus that ARTC is currently at or near efficient costs levels.

- The approach avoids the need for an annual cost efficiency assessment (though it might require a reappraisal of scope annually) and provides the opportunity to gain benefits as long as annual productivity targets are reasonable although, as noted before, this may require a 'reinterpretation' of a strict 'efficient cost' approach.

Costs/risks associated with the approach (which would generally exist in any productivity incentive mechanism) are:

- Bottom up assessments often understate true cost, particularly in relation to maintenance. Having said this, ARTC has a 5 year history of costs for the Hunter Valley so the risk of understating costs should be reduced.

- With a three to five year time frame, ARTC may only able to retain productivity benefits for three to five years, depending on the approach adopted for a regulatory reset.

- The explicit focus on a productivity incentive may result in a tendency for the ACCC to adopt a higher bar than might be set under CPI-X incentive regulation approach. As an example, QR Network claimed a 2.5% per annum 'efficiency dividend' in relation to system-wide and regional costs forecasts on

the basis of an assumption of labour cost growth in line with CPI, being significantly less that actual wages growth.

ARTC seeks stakeholder views in relation to the proposed approach.

5. A positive performance incentive mechanism directly linked to the Network KPIs in the 2011 HVAU

5.1 Overview & consideration

In the 2011 HVAU, ARTC has proposed to regularly report and publish a number of Network KPIs (Section 13.1 of the 2011 HVAU). Network KPIs target reporting of a number of attributes of the service provided by ARTC and covered by the 2011 HVAU, as well as broader measures of performance of the Hunter Valley coal chain generally.

As stated earlier, a key success factor of a performance incentive mechanism is that the performance must be largely within the control of the owner of the infrastructure. It is generally recognised that the performance of the coal chain generally is most important to the customers rather than the performance of one element of the coal chain individually. This is evidenced by the need to ensure contractual alignment between service providers, the establishment of System Assumptions applicable to each element of the coal chain and the establishment of the HVCCC to manage coal chain performance.

Further evidence comes from submissions where, for example, Xstrata Coal proposes a key issue being:

'Xstrata would strongly oppose any performance incentive scheme which would confer a performance incentive on ARTC in the absence of improved performance of the coal chain as a whole.'[20]

The performance of individual service providers does impact on overall coal chain performance. This does not mean that if an individual service provider performs well, the coal chain will perform well. Further, even if all service providers perform well, this does not guarantee the coal chain will perform well, although the possibility of this occurring is higher.

It could, however, be said that if an individual service provider does not perform well, the possibility that the coal chain will not perform well is higher. Where there is working contractual alignment across the coal chain, there should be a nexus

[20] Xstrata Coal Pty Ltd's response to the ACCC Consultation Paper in relation to the 2010 HVAU, p20

between the performance of a service provider against its contractual obligations and the performance of the coal chain generally.

To this end, in ARTC's case, the system-wide TUT acts as a wide-reaching, albeit negative and asymmetric, mechanism for incentivising ARTC to meet contractual obligations. Failure by ARTC to perform in a number of areas including exceeding planned maintenance, over-contracting scheduled paths to non-coal, selling too much Ad Hoc capacity to coal or non-coal, causing excessive system losses, or not meeting track related System Assumptions due to under-maintaining the network, can all result in failure to satisfy the TUT, with financial consequences.

A number of the proposed Network KPIs relate to these attributes of the service provided by ARTC. These include Network KPIs relating to performance around meeting track related System Assumptions, coal chain losses, and network maintenance and investment.

As such, public reporting of the proposed Network KPIs will provide useful insight to Access Holders (and ARTC) as to those attributes of service provision that are causing ARTC to fail to meet the system-wide TUT. As the system-wide TUT penalises ARTC's failure to perform, penalising performance against the underlying KPIs would amount to a double penalty.

However, as the system-wide TUT is negative and asymmetric, the underlying Network KPIs do provide an opportunity to balance the application of the system-wide TUT that can be explored. There may be benefit in rewarding ARTC for meeting or exceeding agreed standards against the underlying Network KPIs.

Where standards for underlying Network KPIs are agreed to align reasonably to ARTC consistently passing the system-wide TUT, then where ARTC meets or exceeds these standards it is performing in a manner that will at least result in it meeting contractual obligations, and possibly may result in the availability of more capacity for use by the coal chain without the need for infrastructure investment.

Where ARTC meets its contractual obligations, it is optimising its contribution to the ability of the coal chain to satisfy contracted requirements of the coal chain generally (maximum throughput), without necessarily ensuring that the coal chain will operate efficiently. The system-wide TUT acts to provide a disincentive to ARTC to not meet its contractual obligations (i.e. failure to meet its obligations incurs a penalty).

Just like there is no incentive under the system-wide TUT for ARTC to make additional capacity available for use (Ad Hoc capacity), there is no incentive for ARTC to exceed agreed performance standards for underlying KPIs. Introducing an incentive could therefore be considered an alternative approach to a more direct system-wide TUT mechanism that may result from the application of Section 13.5 of the 2011 HVAU.

Indeed, there is scope to introduce an incentive mechanism here that could operate in combination with a system-wide TUT mechanism if it were considered useful to incentivise ARTC to not only make more capacity available but also to undertake a 'balanced' or 'efficient' approach to achieving this. For example, there may be a number of ways to achieve an outcome of meeting contractual obligations, some of which are more efficient (e.g. quicker or cheaper) than others. Where this was known to be the case, an incentive mechanism here, as well as a system-wide TUT mechanism could serve to incentivise ARTC to adopt an 'efficient' approach.

It could be argued that the presence of the Ceiling Limit also provides some incentive here, albeit a negative and asymmetric incentive.

5.2 An approach proposed for further consideration

After taking into account the considerations detailed at Section 3 of this paper, ARTC proposes the following approach to developing a performance incentive mechanism linked to the Network KPIs.

- *Indentifying Network KPIs* - Following consultation with stakeholders, identify and prioritise relevant Network KPIs for inclusion in the performance incentive mechanism. Relevant Network KPIs should possess the following attributes, consistent with Section 3 of this paper.
    - Must be meaningful and measurable (ideally simply and objectively).
    - Demonstration of an underpinning of ARTC's performance in the system-wide TUT.
    - Performance must largely be within ARTC's control.
- *Agreeing standards* - Establish over time some empirical evidence around ARTC performance in relation to the system-wide TUT, and performance in

relation to relevant Network KPIs, to inform the parties as appropriate standards are agreed. This will also inform parties in relation to the relativity of impact of each relevant Network KPI on the system-wide TUT, and the relative cost of achieving performance in relation to the Network KPIs. In the end, the determination of the standard will involve some subjectivity, but this can be minimised to the extent that reliable data is available.

- *Prioritising rewards* – the relativity of any financial reward for meeting or exceeding relevant KPIs should reflect:
    - the relative impact of performance in relation to the Network KPI on performance in relation to the system-wide TUT;
    - the relative cost associated with achieving performance levels in relation to the relevant Network KPIs; and
    - the value placed on performance in relation to the Network KPI.
- *Quantifying rewards* – It is desirable that the quantum of any reward be in a range between a level that will incentivise ARTC to achieve a higher level of performance and a level that reflects ARTC's contribution towards the benefit associated with meeting or exceeding a performance standard (i.e. the value of the higher performance).

Given the difficulty in establishing this range, let alone an appropriate level in the range, ARTC proposes that the reward should, as a minimum, be set a level that incentivises ARTC to achieve a higher level of performance. As long as ARTC recovers the cost associated with a higher performance level through the Ceiling Limit (assuming that achieving the higher performance was considered Prudent or Efficient and the network was constrained) any positive incentive should be excluded from the Ceiling Limit.

A reward could take the form of in increase in the regulated Rate of Return, say 0.5%, sufficient to provide an incentive for ARTC to exceed agreed performance standards.

Such a KPI incentive mechanism represents an alternative means of establishing whether ARTC is entitled to a reward, as opposed to the system-wide TUT.

ARTC seeks stakeholder views in relation to the proposed approach.

6. A positive performance incentive mechanism directly linked to achievement of safety targets

6.1 Overview & consideration

ARTC, along with many, if not all, of the stakeholders in the Hunter Valley take great pains to make workplace health and safety the primary consideration at all times. In addition to ARTC's Board and management focus on safety as a responsible corporation, ARTC is required under various forms of regulation and legislation, and under the NSW lease, to meet certain standards in relation to workplace health and safety.

It is, therefore, appropriate that any performance management regime recognises the importance of safety through the use of a specific safety performance incentive.

ARTC sees this as a targeted mechanism that is likely to operate in conjunction with other incentive mechanisms. The other mechanisms in this paper are focussed around increasing network utilisation and achieving productivity gains. While these objectives are appropriate from a commercial and efficiency perspective, they do not explicitly recognise the importance of workplace health and safety outcomes. While one could argue that an appropriate workplace health and safety culture is implicit in any expectation as to performance, there is a risk that safety will be diminished in any consideration of ARTC's performance when it is being measured via incentive measures that are based on cost or throughput. Indeed, in the absence of any explicit health and safety context, performance measures looking purely at efficiency and costs are more likely to reward outcomes that place safety as a second order consideration. ARTC believes that creating positive performance incentives around other objectives without also giving safety at least equal emphasis may work against objectives to meet and exceed safety expectations.

The pursuit of operating a network that is safe and fulfils regulatory and legislative obligations comes at a cost. On the constrained network this cost is recovered through the Ceiling Limit. As such, it could be argued that the industry is paying for safe operation of the network. Even where this is the case though, the existence of a productivity measure along the lines of that described at Section 4.5 of this paper could work against maintaining the focus on meeting and exceeding acceptable safety outcomes.

This is not so directly the case on the unconstrained network, where the cost of achieving safety standards is not immediately recovered, notwithstanding that loss capitalisation may eventually result in full recovery of costs. However, this situation also brings the potential for adverse incentives, where there is an incentive (other than achieving efficient costs) to minimise expenditure in order to minimise losses.

In order to maintain a strong focus on safety, it may be necessary for any rewards to be appropriately balanced against rewards that may arise from other incentive mechanisms.

ARTC reports on safety performance both internally and, as required, externally to safety regulators. ARTC also has internal targets set to achieve improvement in safety related performance. Performance measures currently reported include:

- ARTC accountable:
    - Safe Working Irregularities and Breaches
    - Collisions
    - Derailments
    - SPAD (Signals Passed at Danger) Incidents
    - Fires
    - Level Crossing Incidents
    - Signalling Irregularities
    - Wrong Side Failures
    - Track Irregularities
    - Communications Irregularities
    - Network Security

    These measures are internally reported on a monthly basis.

It should be noted that there are a number of other safety related measures relating more to above rail performance that ARTC reports including:

- Train Partings
- Rollingstock Irregularities
- Loading Irregularities

All incident reporting is classified into Notifiable (24 hours), Notifiable (72 hours) and Non-Notifiable depending on the severity or impact of the incident. Also, ARTC undertakes seasonal adjustment of incident frequency.

Reporting in relation to each of these measures can involve varying degrees of subjectivity and administration, particularly around identifying accountability for performance.

There are a number of aspects in relation to the various types of incidents that ARTC currently reports. These include:

- Number of incidents. As might be expected there is a degree of variation in the number of incidents that can occur from one period to the next. To address this, ARTC normally reports incident numbers within a band of variation (e.g. standard deviation) around a mean. Acceptable performance would lie in that band.
- Trend reporting and forecasting. In line with an objective of continuous improvement, ARTC also reports trends in the number of incidents over a period of time. This can also aid in forecasting.
- Safe Working Breach Frequency Rate. A specific measure reporting number of incidents per 1000 occupancies.
- Close Out reporting. Each incident requires certain actions to occur, which can involve rectification, resulting in Close Out of the incident. The percentage and delay in closing out incidents is a measure of the effectiveness of ARTC remedial processes.
- Lost Time Injury Frequency Rate (LTIFR). A specific measure of the impact of safety performance on the workforce.

As stated above, it is preferable that any rewards be appropriately balanced against rewards that may arise from other incentive mechanisms so that the focus on safety is maintained despite other 'competing' incentives, such as the productivity incentive proposed at Section 4.5 of this paper.

Assuming that the full cost of achieving a desirable standard of safety on the network was included in the Ceiling Limit, an option may be to link the recovery of any productivity incentive under Section 4 of this paper to the safety standard achieved. That is, if ARTC achieves or exceeds the desired safety standard then a mark-up to any productivity incentive would apply. Even if there were no productivity incentive achieved (which may result from achieving the desired level of safety) a nominal reward for achieving that desired level of safety could still apply.

6.2 An option proposed for further consideration

After taking into account the considerations detailed at Section 3 of this paper, ARTC puts forward the following option for developing a performance incentive mechanism related to safety performance.

- Identify specific safety performance measures focussing on workplace safety. Such measures could include safe working breaches and LTIFR.

- Performance reporting would relate to all incidents (where applicable), both Notifiable and otherwise, to get a comprehensive picture of safety performance.

- Historical frequency and trend reporting could be used to agree an acceptable band of performance for the coming year. This would be consistent with ARTC's own internal and external reporting, and legislative requirements.

- Where ARTC performed within the band (i.e. performance was acceptable) a reward would apply. The size of the reward could reflect the performance level achieved.

- As long as the full cost associated with achieving the desired standard of safety on the network was included in the Ceiling Limit then, if actual safety performance fell within the acceptable performance band, ARTC would be rewarded with a mark-up to any productivity incentives achieved with a

nominal ‘floor’ level of the safety reward that would still apply even where no productivity incentive was achieved (which may be an outcome from achieving a desirable safety level).

As such, even though legislative requirements act to penalise unacceptable safety performance, the proposed approach would provide some balancing positive incentive for ARTC to achieve acceptable safety performance by allowing it to increase productivity incentives (rewards). An internal (desirable) tension between productivity and safety would be the likely result.

The above approach would only be effective on the constrained parts of the network. On unconstrained parts of the network, where there are natural incentives to reduce costs and increase network utilisation (possibly at the expense of productivity and safety performance), any reward for actual safety performance within the acceptable performance band could be directly tied to revenue earned. For example, say 1% of TOP charges paid in the Pricing Zone during the year could be available as additional revenue to ARTC for actual safety performance within the acceptable safety band.

- An alternative to specifying specific attributes against which performance could be measured may be to develop a composite measure to reflect more that one safety attribute weighted in some appropriate way. Such measures can provide more comprehensive coverage of safety attributes but, through averaging, may mask specific performance outcomes.

  Most of the elements described above in relation to specific performance measures would also apply in relation to a composite measure.

ARTC seeks stakeholder views in relation to the proposed option.

7. A positive performance incentive mechanism focussed around encouraging the use of innovation (soft assets) to achieve outcomes that could be delivered through hard assets (infrastructure).

7.1 Overview & consideration

ARTC is of the view that the application of economic regulation to infrastructure, at least as it is currently formulated in many areas, does not reward performance where an infrastructure owner achieves desirable outcomes (e.g. increased capacity) through means other than investing in hard (and more expensive) infrastructure assets. In particular, the use of a building blocks rate of return mechanism to constrain pricing generally allows an infrastructure owner to earn a return on a regulated asset base which normally consists of a group of hard assets. The cost of such assets is normally included in the regulated asset base where such cost is considered prudent.

A desirable outcome in the Hunter Valley of increased capacity is normally achieved through investment in hard infrastructure assets, but can sometimes be achieved in other ways, such as improved network management and/or coal chain coordination. Efforts by the industry over the past 5 years to better align the performance of individual service providers with the objectives of the broader coal chain has resulted in significant capacity improvement without the need to make commensurate investments. However, alignment with broader coal chain objectives can also increase risk for individual service providers who are no longer able to optimise the utilisation of their assets in isolation. ARTC is not aware of this risk being adequately recognised in regulated returns.

It should be noted that ARTC is not seeking to be rewarded for activity or innovation resulting in improvements in capacity and utilisation of existing assets, where such improvements only deliver the capacity intended to be achieved from that infrastructure in the first place.

However, where such activity or innovation results in improved capacity beyond that intended from the assets, such that further investment in hard (and more expensive) infrastructure assets is partially or completely avoided or deferred, there is may be some scope for reward. Without this, there is little incentive for the infrastructure manager to do anything other than seek a hard asset solution,

which may not always be the most cost effective solution. Economic regulation currently seeks to bring about innovation more so by using a stick rather than a carrot, where a prudency assessment in relation to the cost of an investment in infrastructure could exclude any expenditure in excess of what might have been the case without innovation. This provides little incentive (reward) for the infrastructure owner to act innovatively.

Whilst industry involvement (through the RCG) in the development and endorsement of additional capacity proposed in the 2011 HVAU will act to ensure investment is prudently incurred, ARTC is likely to be in the best position to identify and develop opportunities to innovate to increase capacity and therefore, unless appropriate incentives are in place, may promote hard asset options over possible innovative solutions.

The industry (through the RCG) is able to capture the benefit of any innovative development of additional capacity through endorsement of a lower capital cost than might otherwise have been needed. There would seem to be little positive incentive to encourage ARTC to seek out innovative solutions to increasing capacity, where the actual cost of delivering the additional capacity that is endorsed into the regulated asset base incorporates any innovation in development. Further, the delivery of additional capacity through innovation alone (i.e. without any capital investment) is not recognised in the regulated cost base at all.

It is not unrealistic for the industry to expect some innovation on ARTC's part (innovation should be a normal competitive market outcome), nor is it unrealistic for the industry to expect to obtain some benefit from advances made through innovation. However, the approach proposed in the 2011 HVAU, which is not inconsistent with normal regulatory practice, does little to incentivise ARTC to engage in innovation, as ARTC will obtain no net benefit from the additional capacity created. For example, if ARTC created additional capacity through the use of more train controllers, presumably it would be able to include the expense in its costs recovered through the Ceiling Limit (in the constrained network) – though this is not a given as the additional cost might not be seen as efficient when measured in isolation (e.g. the unit rate might decline even though the net result is cheaper than the hard asset alternative). However, ARTC would not earn any profit on the increased throughput that arose through this innovation. In this example, ARTC would have been better off to offer a solution based on building more track, in which case it could earn a return on the increased RAB.

7.2 An approach proposed for further consideration

After taking into account the considerations detailed at Section 3 of this paper, ARTC proposes the following approach to developing a performance incentive mechanism related to innovation.

1. Where ARTC is able to demonstrate to the RCG that it has made available, or will make available, additional Capacity (that is available to the industry to use to increase Coal Chain Capacity) that has arisen through innovation and without Capital Expenditure being incurred, or less being incurred than might otherwise have been the case (even where partially offset by increased operating expenditure), then the RCG will endorse for inclusion in the RAB an amount that will result in ARTC receiving an incentive payment over the economic life of the additional Capacity with an NPV equivalent to half the NPV of the financial savings accruing over the economic life of the additional Capacity as a result of the innovation. That is, the incentive amount (IA) to be endorsed for inclusion in the regulatory asset base will be such that:

$$NPV\left(\sum_{i}^{L} (IRIA_i)\right) = 0.5 * NPV\left(\sum_{i}^{L} (ICHA_i - ICIA_i)\right)$$

Where:

L is the economic life in years of the Additional Capacity.

$IRIA_i$ is the incremental revenue to ARTC arising from inclusion of IA in the regulatory asset base (being return of and return on capital associated with IA) in year i.

$ICHA_i$ is the incremental cost to the industry associated with the hard asset investment (investment that would have occurred without innovation) in year i. This would include incremental operating expenditure associated with this investment. Where this is not known, the cost of investment could be based on the average unit cost of Capacity applying to the next addition of Capacity where the existing level of Capacity is that level to which ARTC is proposing to add through innovation. This could be determined with regard to the most recent Hunter Valley corridor capacity strategy and, where applicable, the most recent relevant and available cost of Additional Capacity endorsed by the RCG

under the 2011 HVAU. Calculation would be undertaken by dividing the cost of the next addition of Capacity (without innovation) by the Additional Capacity (mT) expected to be made available.

$ICIA_i$ is the incremental cost to the industry associated with the innovative asset investment (investment that has occurred with innovation) in year i. This would include incremental operating expenditure associated with this investment.

2. This would also apply where ARTC could demonstrate Capacity that is in excess of what might otherwise have been made available through Capital Expenditure is made available without (or through reduced) Capital Expenditure.

3. Independent expert determination would apply to whether ARTC has demonstrated that it has made available, or will make available, additional Capacity without Capital Expenditure being incurred.

   This would mean that ARTC would share with the industry the benefits of the additional capacity made available without Capital Expenditure. The industry gains the benefit of additional track capacity, which it is free to develop into coal chain capacity.

ARTC seeks stakeholder views in relation to the proposed approach for the inclusion of amounts into the RAB when capacity is delivered through innovation or other means than incurring Capital Expenditure (or incurring reduced Capital Expenditure) for the creation of additional hard assets.

8. Conclusion

ARTC has sought to propose options for positive performance incentive mechanisms in a range of aspects of the service provided by ARTC including cost management, safety and innovation.

Table 2 below shows a checklist comparison of each proposed option against the success factors of a performance incentive mechanism identified in Section 3.

It could be argued that all mechanisms proposed meet a number of the success factors. In order to not align ARTC incentives in any one direction, possibly giving rise to adverse incentives elsewhere, adopting more than one mechanism is likely to be appropriate.

It is ARTC's view that any positive performance incentive mechanism forming part of the TUT may have wider implications than those mechanisms presented in this paper. As stated earlier, the ACCC has already indicated in documentation throughout its consultation that it has focussed on the negative and asymmetric nature of the system-wide TUT. The mechanisms proposed in this paper also seek to offset related negative and asymmetric incentives facing ARTC. For example, the prudency test in relation to investment serves to ensure ARTC does not inefficiently incur such expenditure, but there is currently nothing that incentivises ARTC to outperform.

It was suggested that the system wide TUT should also provide positive performance incentives for ARTC to:

- increase network utilisation by contracting for more capacity, rather than less, and
- utilise spare capacity by providing Ad Hoc paths, where possible.

ARTC recognises that the system-wide TUT in the IAHA provides an asymmetric incentive, and that, by itself, the TUT provides no incentive to provide Ad Hoc Paths until such time in each period that it has either delivered all contracted paths, the tolerance cap, and tolerance paths sought by access holders or when it is sure that the provision of the Ad Hoc Paths will not impact on its ability to deliver these things.

To this end, it is ARTC's intention to develop options to provide positive performance incentives in relation to the system-wide TUT along the lines above in due course.

Stakeholders should therefore consider the options presented in this paper as ultimately forming part of a package with system-wide TUT positive performance incentives as described.

ARTC seeks stakeholder views in relation to the overall structure of a scheme incorporating one or more positive performance incentives mechanism that may best address the necessary balance of ARTC's incentives on the network.

Table 2 Checklist comparison of each proposed option against the identified success factors

	4. A positive performance incentive mechanism to improve ARTC productivity	**5. A positive performance incentive mechanism directly linked to Network KPIs proposed in the 2011 HVAU**	**6. A positive performance incentive mechanism directly linked to achievement of safety targets**	**7. A positive performance incentive mechanism focussed around encouraging the use of innovation (soft assets) to achieve outcomes that could be delivered through hard assets (infrastructure).**
The identification and focus on those performances that are most valued by users.	Improved productivity in service delivery results in lower charges in the long term and satisfies regulatory objectives.	Identification and focus of indicators to be based on consultation.	Safety on the network should be important to both ARTC and users.	Providing additional capacity at no cost or lower cost brings significant benefit to producers.
Clear description of the performance level required.	Clear once cost/productivity targets are agreed.	Clear once agreed. Some subjectivity in determining level.	Clear once agreed. Process for developing standards.	Identification of additional Capacity through modelling.
Performance indicators which are both meaningful and measurable.	Costs (and unit costs) are driven by a range of factors. Can be difficult to pin down reasons for performance. Costs are measurable.	KPIs have meaning individually and together and are measurable.	Specific performance measures target key safety performances, or a composite measure to provide a more comprehensive but perhaps less diagnostic perspective.	Measurement of ICHA and ICIA can be subjective, but an actual or proxy approach can be agreed. Only rewards innovation.
The appropriateness of any financial implication compared to the impact of success or failure.	Appropriate as long as targets are realistic.	Financial implications would need to be considered and agreed. Could be linked to other rewards (possibly TUT outcomes).	Tied to productivity improvement incentive which is a 'balancing' incentive.	Both ARTC and producers share in benefits.
Performance must largely be within the control of the owner of the infrastructure.	Unit costs are largely manageable by ARTC, as long as constraints and extraordinary events are recognised.	Select KPIs that are largely controllable by ARTC.	Only ARTC Accountable performance is incorporated, but some subjectivity in assessing accountability is involved.	Additional track capacity made available by ARTC innovation should be identifiable. More difficult where there are joint developments. Basis of sharing can be agreed.